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INSPEC - 1969 to date (INZZ)

Accession number & update
5025009, B9510-6150C-004; 950816.

Title
SDH line-error detection method using reduced **BIP.**

Author(s)
Tokizawa-I; Ueda-H; Uematsu-H.

Author affiliation
NTT Transmission Syst Labs, Yokosuka, Japan.

Source
Electronics-and-Communications-in-Japan-Part-1 (Communications)(USA), vol.78, no.4, p.35-43, April 1995.

CODEN
ECJCED.

ISSN
ISSN: 8756-6621, CCCC: 8756-6621/95/0004-0035.

Publication year
1995.

Language
EN.

Publication type
J Journal Paper.

Treatment codes
T Theoretical or Mathematical.

Abstract
For STM-N transmission lines in a **synchronous digital hierarchy (SDH),** a 24N bits **interleaved** parity **(BIP)** detection code is established in order to monitor transmission line errors. The hardware required for **BIP** code calculation increases in proportion to the speed of the transmission line. For

example, with STM-16 (2.48832 Gbit/s), the **BIP** code uses 384 bits, and the line-error detection function occupies a large portion of the **SDH** interface hardware. This paper proposes a method to solve the foregoing problem, which implements line-error detection by using a shorter **BIP** code obtained by conversion of the received **BIP** code, at the receiving end. At the transmitting end, **BIP** code conforming with the ITU-T (formerly CCITT) standard is generated. This method allows integration with international standards, without degrading performance. That is, with an STM-16, the hardware size is reduced by about 3000 gates, which is approximately a 20 percent reduction in the total gate count of an **SDH** processor. (5 refs).

Descriptors

code-standards; error-detection-codes; interleaved-codes; synchronous- digital-hierarchy; telecommunication-transmission-lines.

Keywords

SDH line error detection method; STM N transmission lines; **synchronous digital hierarchy;** ITU T standard; bits **interleaved** parity detection code; transmission line errors; transmission line speed; STM 16; line error detection; **SDH** interface hardware; CCITT; international standards; hardware size reduction; total gate count; **SDH** processor; reduced **BIP;** bits **interleaved** parity reduction; 2.48832 Gbit s.

Classification codes

B6150C (Communication switching).
B6240 (Transmission line links and equipment).
B6120B (Codes).

Numerical indexing

bit rate: 2.48832E+09 **bit/s.**

Copyright statement

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INSPEC - 1969 to date (INZZ)

Accession number & update

4404272, B9306-6110-018; 930512.

Title

Bit error ratio assessment capability of **bit interleaved** parity in presence of error bursts.

Author(s)

Cornaglia-B; Pane-P; Spini-M.

Author affiliation

CSELT, Torino, Italy.

Source

Electronics-Letters (UK), vol.29, no.7, p.629-31, 1 April 1993.

CODEN

ELLEAK.

ISSN

ISSN: 0013-5194, CCCC: 0013-5194/93/ ($7.50+0.00).

Publication year

1993.

Language

EN.

Publication type

J Journal Paper.

Treatment codes

T Theoretical or Mathematical; X Experimental.

Abstract

The **bit interleaved** parity codes **(BIP)** recommended for the **synchronous digital hierarchy (SDH)** are applied to error monitoring functions. The performance of these codes in terms of the BER assessment capability is analysed in the presence of error bursts. (5 refs).

Descriptors
digital-communication-systems; error-detection-codes; error-statistics; synchronous-digital-hierarchy.

Keywords
bit error ratio assessment; **bit** error rate; **bit interleaved** parity codes; **BIP; synchronous digital hierarchy; SDH;** error monitoring functions; BER assessment capability; error bursts.

Classification codes

```
B6110     (Information theory).
B6210     (Telecommunication applications).
B6120B    (Codes).
```

☐ **document 13 of 15** Order Document

INSPEC - 1969 to date (INZZ)

Accession number & update
4130845, B9205-6210-045; 920408.

Title
Conditions for detecting **bit** error ratio alarm and false frame alignment using **BIP** in **SDH** interface.

Author(s)
Ueda-H; Fujime-K; Maki-K.

Author affiliation
NTT, Ibaraki, Japan.

Source
NTT-R-D (Japan), vol.41, no.1, p.65-76, 1992.

CODEN
NTTDEC.

ISSN
ISSN: 0915-2326.

Publication year
1992.

Language
JA.

Publication type
J Journal Paper.

Treatment codes
P Practical.

Abstract
The **bit interleaved** parity, **BIP,** is defined in the STM-N framework for the **synchronous digital hierarchy, SDH,** to monitor line error performances. The authors present two applications of the **BIP.** One is signal degradation detection for a given **bit** error ratio threshold. This is needed for line maintenance. The other is false frame detection. All devices with **SDH** interfaces require frame alignment, in which it is very important to prevent false frame alignment. (8 refs).

Descriptors
packet-switching; telecommunication-equipment.

Keywords
line error performance monitoring; **bit** error ratio alarm; **BIP; SDH** interface; **bit interleaved** parity; **synchronous digital hierarchy;** line error performances; signal degradation detection; line maintenance; false frame detection.

Classification codes
B6210 (Telecommunication applications).

☐ **document 15 of 15** Order Document

INSPEC - 1969 to date (INZZ)

Accession number & update
3733768, B90070891; 900000.

Title
Performance analysis of the error monitoring methodologies recommended for **SDH** systems.

Author(s)
Brugia-O; Carbonelli-M; Perucchini-D.

Author affiliation
Foudazione Ugo Bardoni, Rome, Italy.

Source
Electronics-Letters (UK), vol.26, no.17, p.1394-5, 16 Aug. 1990.

CODEN
ELLEAK.

ISSN
ISSN: 0013-5194, CCCC: 0013-5194/90/ ($3.00+0.00).

Publication year
1990.

Language
EN.

Publication type
J Journal Paper.

Treatment codes
T Theoretical or Mathematical.

Abstract
The **bit interleaved** parity codes recommended for **synchronous digital hierarchy** are applied to error monitoring functions. The performance of these codes in terms of their **bit** error rate assessment capability is analysed. (3 refs).

Descriptors
coding-errors; encoding; error-detection-codes.

Keywords
performance analysis; BER; error monitoring methodologies; **SDH** systems; **bit interleaved** parity codes; **synchronous digital hierarchy;** error monitoring functions; **bit** error rate assessment capability.

Classification codes
B6120B (Codes).
B6110 (Information theory).

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